
PHONOLOGICAL INSTRUCTIONAL STRATEGIES AND PRIMARY PUPILS SPELLING PERFORMANCE IN AKWA IBOM NORTH EAST SENATORIAL DISTRICT

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ABSTRACT

The research determined the effect of three phonological instructional strategies on spelling performance of primary school pupils in Akwa Ibom North East Senatorial District. In order to carry out the study objectively, three specific objectives, three research questions and three hypotheses were formulated. The study adopted the pretest, post-test, control group non-randomised quasi experimental research design. The population of the study comprised of 11,180 primary two pupils consisting of 5,361 male and 5,819 female from public primary schools and a sample size of 120 respondents. Instruments titled "Pupils Spelling Performance Test (PSPT)" was used for data collection. Pearson Product Moment Correlation (PPMC) was used to determine the reliability of the instruments, which gave value of 0.83 for PSPT. Mean and standard deviation were used for answering research questions while analysis of covariance (ANCOVA) was used in testing the null hypotheses at .05 level of significance. The findings revealed that there is no significant mean difference in pupils' spelling performance when taught using rhyming, sound deletion, phoneme substitution and Look and Say Instructional strategies. The school administrators should consider in-service training for English teachers in phonological instructional strategies. Curriculum planners should ensure phonological instructional strategies is as teaching methods for teachers in achieving spelling goals as spelling affects reading and writing.

KEYWORDS

Spelling, rhyming, sound deletion, phoneme substitution, look and say

INTRODUCTION

Literacy skills cover a wide range of academic activities with which pupils make progress in school. An essential yardstick in the measurement of literacy in Nigeria is the capability to spell, read and write in English language. Rao (2018) viewed spelling as a linguistic unit of language referring to writing skill. It is defined as the act of forming words correctly from individual letter. Wang and Jiang (2015) opined that, children who learned how to spell before they learned how to read, had their writing skills and ability to read positively influenced.

Spelling is one curriculum area in which neither creativity nor is divergent thinking encouraged. Only one pattern or arrangement of letters can be accepted, no compromise is possible. What makes spelling so difficult is that the written form of the English language has an inconsistent pattern; there is no correlation between the spoken sounds of English and the written form of the language (Lerner, 2003). Therefore, spelling is not an easy task, even for people who do not have spelling difficulties (Lerner, 2003). Apparently, the process of learning how to spell is more challenging than the process of learning to read. In essence, pupils learn to spell before they can read. In reading however, a lot of clues, phonics, structural analysis and cognition help the reader to identify a word in print. Spelling on the other hand, offers very little peripheral clues to draw on. Most pupils who find it challenging spelling words may be rather skilled in identifying same words during reading. However, pupils who struggle to decode words during reading are most likely to be poor at spelling. Literacy skills. spelling, reading and writing are all interrelated Spelling instruction requires knowledge of phonological and phonemic awareness.

Gillon (2004) defines phonological awareness as the detection and manipulation of sounds at three levels of sound structure- syllables, onsets and rimes as well as phonemes. Phonemic awareness is a subcategory of phonological awareness. It is the conscious awareness of phonemes, the smallest units of sound in a spoken word (Majorie, 2020). According to Ehri (2014), pupils who may not have developed phonological awareness fail to recognize that there are phonemes/sounds within spoken words, as such, have difficulties with spelling-to- sounds linkages that are essential in spelling.

LITERATURE REVIEW

The federal government of Niger (FGN, 2013) through its policy on education stated that, “the inculcation of permanent literacy and numeracy, and the ability to communicate effectively, and basic rudiment in numbers at the early stage of pupils’

schooling” shall be the main drive of pre-primary and primary education (FGN, 2013). It is common to find pupils in public schools across Nigeria struggling to use phonics as well as employing structural analysis in spelling. Still, there are also others who find it difficult visualizing the appearance of words. Spelling however, requires that individuals not only recall words from memory, but also make use of visual clues.

According to Jonas (2013), phonological awareness skills of segmenting, sequencing, discriminating, and identifying phonemes play a critical role in spelling development. Learners need to have knowledge of the sound-symbol relationship to be able to represent spoken language in written form. They need to be able to break down words into phonemes and then link the phoneme to their written form to be able to spell a word (Moats & Tolman, 2009). Spelling is considered an essential component of written language. The potential mistakes in written spellings may change the meaning and understanding of written material and would make it unclear. Hence, it is important to use the correct spelling of words in order to convey the exact intended meaning of the content (Dheifallah & Radzuwan, 2019). In this context, grammatical and phonological skills make a major contribution to spelling performance. Therefore, it can be asserted that spellings play a pivotal role being a primary and essential skill required by pupils. Accurate spelling enables writers to express their ideas and thoughts within a standard framework which is easily understandable by their readers. For effective writing, spelling must also be effective (Dheifallah & Radzuwan, 2019).

The Stage Theory of Spelling by Edmund Henderson (1981) posited that learners most often go along a developmental progression that reflects the increasing complexity of the spelling system itself and acquisition of progressively more complex spelling patterns that represent both sound and meaning (Templeton, 2020), this theory emphasizes the teaching of spelling in stages as children progress through stages of spelling development (Templeton, 2023). The theory of Intellectual Development propounded by Jean Piaget (1955) views cognitive development as a process that occurs due to the duality of biological maturation as well as human interaction with the environment. This interaction influences the nature and development of human intelligence. This theory agrees that pupils should be guided and directed analytically and synthetically to their curiosity, hence result oriented instructional methods should be used in teaching pupils in early childhood classes.

The Oxford Dictionaries defines rhyming as the repetition of similar sounds (usually, exactly the same sound) in the final stressed syllables and any following syllables of two or more words (Oxford Dictionaries, 2013; <http://www.antreprenoriatbt.ase.ro/>). One of the core goals of the pre-primary level of education in Nigeria with respect to learning is to instill rhyme awareness and the capacity to become aware of and produce rhymes in pupils. Sound-deletion is a method that requires pupils to manipulate spoken

words by deleting specific phonemes in the word. It is the capability to recognize how a word would sound if one phoneme were omitted. The use of sound deletion helps to develop a child's phonemic awareness (Goswami, 2018). Phoneme substitution on the other hand, the capability of transforming a word into a new word by simply replacing any of its phonemes or sounds. It is the ability to substitute a phoneme in a word with another similar phoneme with the intent of forming a new word. Look and Say is a teaching method based on the recognition and pronunciation of words without any attempt to teach word analysis and synthesis. In the method of teaching reading, each word is taught as a whole.

The inability to spell words correctly affects literacy generally. Most children forget words and cannot spell regular and irregular words. For many children, teachers often explore explicit instruction as a means to teach dozens of letter-phoneme correspondences which are essential to unlocking word pronunciations. Pupils learn spelling by systemically and generally acquiring speech sounds the corresponding letters that represent them, which is also critical to accurate and automatic word recognition. Spelling cannot be taught merely by trying to get pupils to take mental pictures of words in order to ensure that these images are clear and precise, rather, pupils' learning depends on adequate information for their brains to work efficiently. In teaching spellings, teachers are expected to provide sufficient information and cues, so that their pupils can easily identify, learn and apply important spelling/word patterns and features. Children have difficulties in spelling due to poor recognition of speech sounds (sounding out) or encoding (spelling) words (Brown and Morris, 2015). Difficulty in these skills makes it very hard for pupils to succeed in academic pursuit.

The growing concern for spelling has made it an area of immense researched interest in the English language school curriculum in Nigeria. Despite research efforts in the past, the problem of poor spelling still persists among primary school pupils. It is therefore on this premise that this study was inspired, to investigate the effect of three phonological teaching strategies - rhyming, sound-deletion and phoneme-substitution on spelling and reading performance of primary school pupils in Akwa Ibom State, Nigeria.

RESEARCH OBJECTIVES

1. To ascertain the mean difference in pupils' spelling performance when taught using Rhyming and Look-and-Say Instructional strategies.
2. To determine the mean difference in pupils' spelling performance when taught using Sound deletion and Look-and-Say Instructional strategies.
3. To determine the mean difference in pupils' spelling performance when taught using Phoneme substitution and Look-and-Say Instructional strategies.

RESEARCH HYPOTHESES

1. There is no significant mean difference in pupils' spelling performance scores when taught using rhyming and Look-and-Say instructional strategies.
2. There is no significant mean difference in pupils' spelling performance scores When taught using sound deletion and Look-and-Say instructional strategies.
3. There is no significant mean difference in pupils' spelling performance scores when taught using phoneme substitution and Look-and-Say instructional strategies.

RESEARCH METHODOLOGY

This study adopted the pretest, post-test, control group quasi experimental research design. This design was considered appropriate because it allowed the researcher to examine the cause and effect of the independent variables on the dependent variables using a sample of the population and the result was generalized to the entire population.

The population of this study comprises 11,239 primary two pupils in public primary schools in Uyo senatorial district of Akwa Ibom State. (Department of Planning, Research and Statistics, State Ministry of Education and Universal Basic Education, SUBEB 2022).

Multi stage sampling technique was used to select the sample 120 pupils out of the 4 schools from four local government area. 25-35 pupils were selected from each school. This gave a total of 120 pupils. The researcher developed an instrument tagged "Pupils Spelling Performance Test (PSPT). Pearson Product Moment Correlation (PPMC) was used to determine the reliability of the instrument which gave 0.83 for PSPT. Generally, if the reliability of a standardized test is above .80 it is said to have a very good reliability (Cho, 2022).

The sample selected for the study was grouped into three experimental groups and one control group. Experimental groups were assigned the three phonological instructional strategies while the control group remained the conventional classroom.

E₁: O₁ x O₂

E₂: O₃ x O₄

E₃: O₅ x O₆

C: O₇ - O₈

E₁: Experimental group 1 taught using rhyming instructional strategy

E₂: Experimental group 2 taught using sound-deletion instructional strategy

E₃: Experimental group 3 taught using Phoneme-substitution instructional strategy

C: Control group taught using the conventional strategy - the Look and Say

Where O₁: Pretest instrument for experimental group 1

O₃: Pretest instrument for experimental group 2

- 0₅: Pretest instrument for experimental group 3
 0₇: Pretest instrument for control group
 0₂: Post-test instrument for experimental group 1
 0₄: Post-test instrument for experimental group 1
 0₆: Post-test instrument for experimental group 1
 0₈: Post- test instrument for control group

X₁: Treatment for experimental group 1 using rhyming instructional strategy

X₂: Treatment for experimental group 2 using sound-deletion instructional strategy

X₃: Treatment for experimental group 3 using phoneme substitution instructional strategy.

DATA ANALYSIS

The data was analyzed using the Mean and standard deviation to answer the research questions and the analysis of covariance (ANCOVA) was used in testing the hypotheses at .05 level of significance. The pretest scores were used as covariates to the posttest scores.

Research Question 1: What is the mean difference in pupils' spelling performance when taught using Rhyming and Look and Say Instructional strategies?

Table 1: Summary of mean difference in pupils' spelling performance when taught using Rhyming and Look and Say Instructional strategies

Teaching methods	Post-test			Pretest			Mean Gain Posttest-Pretest	Mean Difference (LSAY-Rhyming)
	n	M	SD	n	M	SD		
Rhyming	28	75.54	19.45	28.0	62.86	21.62	12.68	0.32
Look-and-say	34	63.09	30.75	34	50.09	21.67	13.00	

Table 1 gives the summary of the pretest and posttest Mean and standard deviation of performance scores of pupil's performance in spelling when taught using Rhyming as well as Look and Say Instructional strategies. The result shows that the mean gain of pupils in Rhyming is 12.68, while the mean gain for look and say is 13.00. The mean difference between look and say and Rhyming is 0.32. This shows that pupils taught spelling with look and say slightly performed better than pupils taught using rhyming.

Research Question 2: What is the mean difference in pupils' spelling performance when taught using Sound deletion and Look and Say Instructional strategies?

Table 2: Summary of mean difference in pupils' spelling performance when taught using Sound deletion and Look and Say Instructional strategies

Teaching methods	Post-test			Pretest			Mean Gain Posttest-Pretest	Mean Difference (LSAY-Rhyming)
	N	M	SD	n	M	SD		
Sound Deletion	32	87.19	13.56	32	62.19	24.53	25	12
Look-and-say	34	63.09	30.75	34	50.09	21.67	13	

Table 2 gives the summary of the pretest and posttest Mean and standard deviation of performance scores of pupils' performance in spelling when taught using sound deletion as well as Look and Say Instructional strategies. The result shows that the mean gain of pupils in Sound deletion is 25, while the mean gain for look and say is 13. The mean difference between sound deletion and look and say is 12. This shows that pupils taught spelling with sound deletion performed better than pupils taught using look and say.

Research Question 3: What is the mean difference in pupils' spelling performance when taught using Phoneme-substitution and Look and Say Instructional strategies?

Table 3: Summary of mean difference in pupils' spelling performance when Taught using Phoneme-substitution and Look and Say

Teaching methods	Post-test			Pretest			Mean Gain Posttest-Pretest	Mean Difference (LSAY-Rhyming)
	n	M	SD	n	M	SD		
Phoneme Sub	32	82.50	15.38	32	63.27	16.97	19.23	6.23
Look-and-say	34	63.09	30.75	34	50.09	21.67	13	

Table 3 presents the summary of the pretest and posttest Mean and standard deviation of performance scores of pupils' performance in spelling when taught using Phoneme-substitution as well as Look and Say Instructional strategies. The result shows that the mean gain of pupils in Phoneme-substitution is 19.23, while the mean gain for look and say is 13. The mean difference between Phoneme-substitution and look and say is 6.23. This shows that pupils taught spelling with Phoneme-substitution performed better than pupils taught using look and say.

Hypothesis One

Here is no significant mean difference in pupils' spelling performance when taught using Rhyming and Look and Say Instructional strategies.

Table 4: Summary of Analysis of Covariance Test for significant mean difference in pupils' spelling performance when taught using Rhyming and Look and Say Instructional strategies

Source	SS	Df	MS	F
Rhyming	951.305	1	951.305	1.387*
Look and Say	3086.721	1	3086.721	4.500*
Error	40466.395	59	685.871	

* $p < .05$

The result of the analysis in Table 4 gives the summary of the Analysis of Covariance (ANCOVA) test. The result shows that the calculated F value is 4.50. The probability of F that is the P value is .038. Since the P-value is less than the alpha level of .05, the result is statistically significant. Thus, the null hypothesis is rejected. Hence, there is a significant mean difference in pupils' spelling performance when taught using Rhyming and Look and Say Instructional strategies.

Hypotheses Two

There is no significant mean difference in pupils' spelling performance when taught using Sound deletion and Look and Say Instructional strategies.

Table 5: Summary of Analysis of Covariance Test for significant mean difference in pupils' spelling performance when taught using Sound deletion and Look and Say Instructional strategies

Source	SS	Df	MS	F
Sound deletion	1183.649	1	1183.649	2.088*
Look and Say	10691.855	1	10691.855	18.86*
Error	35713.962	63	566.888	

*Significant at $p < .05_{.001}$

The result of analysis on Table 5 gives the summary of the Analysis of Covariance (ANCOVA) test. The result shows that the calculated f value is 18.861. The probability of F that is the P value is .001. Since the P-value is less than the alpha level of .05, the result is statistically significant. Thus, the null hypothesis is rejected. Hence, there is a significant mean difference in pupils' spelling performance when taught using sound deletion and Look and Say Instructional strategies.

Hypotheses Three

There is no significant mean difference in pupils' spelling performance when taught using Phoneme substitution and Look and Say Instructional strategies.

Table 6: Summary of Analysis of Covariance Test for significant mean difference In pupils' spelling performance when taught using Phoneme substitution and Look and Say Instructional strategies

Source	SS	Df	MS	F
Phoneme substitution	840.182	1	840.182	1.320
Look and Say	6377.834	1	6377.834	10.022
Error	36273.054	57	636.369	

*Significant at $p < .05_{.002}$

The result of analysis on Table 6 gives the summary of the Analysis of Covariance (ANCOVA) test. The result shows that the calculated f value is 10.022. The probability of F that is the P value is .002. Since the P-value is less than the alpha level of .05, the result is statistically significant. Thus, the null hypothesis is rejected. Hence, there is a significant mean difference in pupils' spelling performance when taught using Phoneme substitution and Look and Say Instructional strategies.

FINDINGS

There is a significant mean difference in pupils' spelling performance when taught using Rhyming and Look and Say Instructional strategies, with pupils in look and say performing slightly better than rhyming.

There is a significant mean difference in pupils' spelling performance when taught using Sound deletion and Look and Say Instructional strategies, with pupils in sound deletion performing better than those in look and say

There is a significant mean difference in pupils' spelling performance when taught using Phoneme substitution and Look and Say Instructional strategies, with pupils in phoneme performing better than look and say.

DISCUSSION

Rhyming, Look and Say Instructional Strategies and Pupils' Performance in Spelling

Findings from the analysis show that the mean gain of pupils in Rhyming is 12.68, while the mean gain for look and say is 13.00. The mean difference between look and say and Rhyming is 0.32. This shows that pupils taught spelling with the look and say slightly performed better than pupils taught using rhyming. The related hypothesis test indicates that there is a significant mean difference in pupils' spelling performance when taught using Rhyming and Look and Say Instructional strategies, with pupils in Look and Say performing better than their peers in rhyming. This finding is in tandem with Mann *et al.* (2010) whose results found that students' posttest scores were higher

after exposure to sounding out, indicating that it was effective in improving students' spelling ability. This finding further agrees with Dymock and Nicholson (2017) who studied how pupils' spelling abilities are enhanced when exposed to look, say, cover, write, check, and fix strategies in comparison to phonological spelling strategies. They found that the look and say approach enhances transfer to the spelling of new words for both proficient and less proficient spellers better than other methods tested.

Sound Deletion, Look and Say Instructional Strategies and Pupils' Performance in Spelling

The result shows that the mean gain of pupils in sound deletion is 25, while the mean gain for look and say is 13. The mean difference between sound deletion and look and say is 12. This shows that pupils taught spelling with sound deletion performed better than pupils taught using look and say. The corresponding hypothesis test reveals there is a significant mean difference in pupils' spelling performance when taught using sound deletion and Look and Say Instructional strategies. This finding is corroborated by Hashemi and Ghalkhani (2016) who investigated how different techniques of teaching spelling to children with no experience with the English language would impact their spelling abilities. They found that the personalized instruction technique and the detection (sound deletion) technique groups were both able to create spellings that exceeded those of the control group. These findings suggest that children who are unfamiliar with the English language letters are able to evolve their knowledge and spelling abilities with exposure to letters, sounds, and different instructional techniques that encourage invented spelling. This finding agrees with Ankrah, Nyanta and Opoku (2017) who carried out a study on using phonic method to improve poor reading ability of pupils. The study portrayed a significant difference in the overall reading ability of the pupils taught with phonic method.

Phoneme-substitution, Look and Say Instructional Strategies and Pupils' Performance in Spelling

The result shows that the mean gain of pupils in Phoneme-substitution is 19.23, while the mean gain for look and say is 13. The mean difference between Phoneme-substitution and look and say is 6.23. This shows that pupils taught spelling with Phoneme-substitution performed better than pupils taught using look and say. The hypothesis test shows there is a significant mean difference in pupils' spelling performance when taught using Phoneme substitution and Look and Say Instructional strategies. This finding is in tandem with Oduro *et al.* (2012) who investigated the teacher-approaches to remediating phonics learning among readers with difficulties. Findings of the study revealed that application of phonics instruction greatly influenced reading abilities and pronunciation skills of pupils.

This finding is in line with Abbott (2014) who studied the influence of traditional and developmental spelling instruction of pupils. They found that using phonics, and orthographic had a high positive effect on pupils' spelling performance. The finding agrees with Komesidou (2018) whose findings revealed that the use of non-words with many phonological neighbors enhanced spelling and reading performances more than the use of non-words with many orthographic neighbors.

RECOMMENDATIONS

This study is limited to primary two pupils in Akwa Ibom state, for further research work, primary one to five classes should be considered instead of generalizing the findings from a particular class. Teacher's effectiveness and qualification should also be considered in utilizing phonological instructional strategy in teaching. Does gender difference play a role in choice of phonological instructional strategy? Gender difference and use of phonological instructional strategy should also be studied.

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